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**Datasheet for the decision  
of 29 June 2006**

**Case Number:** T 1175/04 - 3.2.05

**Application Number:** 98308559.8

**Publication Number:** 0945243

**IPC:** B29C 45/17

**Language of the proceedings:** EN

**Title of invention:**

Clamping apparatus for a tiebarless injection moulding machine

**Patentee:**

Industrias Romi S.A.

**Opponent:**

Engel Austria GmbH

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 56, 84, 123(2)

**Keyword:**

"Clarity (yes)"

"Extension beyond the content of the application as filed  
(no)"

"Inventive step (yes)"

**Decisions cited:**

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**Catchword:**

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Case Number: T 1175/04 - 3.2.05

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.05  
of 29 June 2006

**Appellant:**  
(Opponent)

Engel Austria GmbH  
Ludwig-Engel-Straße 1  
A-4311 Schwertberg (AT)

**Representative:**

Hofinger, Engelbert  
Patentanwälte Torggler & Hofinger  
Postfach 556  
Wilhelm-Greil-Straße 16  
A-6021 Innsbruck (AT)

**Respondent:**  
(Patent Proprietor)

Industrias Romi S.A.  
Avenue Pérola Byington 56  
BR-13453-900 Santa Bárbara d'Oeste  
Sao Paulo (BR)

**Representative:**

Needle, Jacqueline  
Beck Greener  
Fulwood House  
12 Fulwood Place  
London WC1V 6HR (GB)

**Decision under appeal:**

Interlocutory decision of the Opposition  
Division of the European Patent Office posted  
3 August 2004 concerning maintenance of the  
European patent No. 0945243 in amended form.

**Composition of the Board:**

**Chairman:** W. Moser  
**Members:** W. Widmeier  
H. Schram

## Summary of Facts and Submissions

- I. The appellant (opponent) lodged an appeal against the interlocutory decision of the Opposition Division maintaining European patent No. 0 945 243 in amended form.
- II. Oral proceedings before the Board of Appeal were held on 29 June 2006.
- III. The appellant requested that the decision under appeal be set aside and that the European patent No. 0 945 243 be revoked in its entirety.
- IV. The respondent (patent proprietor) requested as main request that the decision under appeal be set aside and that the patent be maintained in the amended form as maintained by the Opposition Division, but with paragraph [0013] deleted. As an auxiliary measure, the respondent requested that the decision under appeal be set aside and that the patent be maintained on the basis of the following documents filed on 24 May 2006:
- (a) claim 1 as first auxiliary request; or
  - (b) claims 1 to 3 as second auxiliary request.
- V. Claim 1 of the main request reads as follows:
- "1. A clamping apparatus for a tiebarless injection moulding machine having a machine frame (1), the clamping apparatus comprising a fixed platen (2) fixed to the machine frame (1), a movable platen (3) supported by said machine frame, drive means (4, 5, 6; 4, 6, 29, 30, 31) for moving said movable platen (3)

towards and away from said fixed platen (2), and a clamping structure (7, 8) for maintaining the fixed and movable platens in a clamping position, wherein, in the clamping position of the fixed and movable platens, a respective part (9, 10, 11, 12) of the clamping structure is in force transmitting relationship with each of the fixed and movable platens (2, 3) such that the clamping structure is able to absorb clamping forces, the movable platen (3) is in force transmitting relationship with said clamping structure by way of a force transmission member (4) mounted for displacement along said machine frame (1), and the clamping apparatus being characterised in that said force transmitting parts (9, 10, 11, 12) of the clamping structure are each integrally formed therewith and each have a curved surface (9a, 10a, 11a, 12a) which abuts a planar surface of a respective one of the fixed platen (2) and the force transmission member (4)."

VI. The following documents were in particular referred to in the appeal procedure:

D1: DE-C-44 26 521  
D2: EP-A-0 554 068  
D6: WO 95/04643

VII. The appellant argued essentially as follows:

The expression "integrally formed" has two meanings. It may mean "formed as a single piece", and it may mean a structural integration of separate components. The latter is shown, for example, in document D2 in combination with a clamping structure of an injection moulding machine, cf. column 3, lines 47 to 51, and

Figure 1. Since claim 1 of the main request does not specify which of these two meanings it refers to, this claim lacks clarity.

The feature that the force transmitting parts are integrally formed with the clamping structure is not disclosed in the application as filed. The schematic drawings of the application cannot be considered to represent a basis for this feature, and the description does not mention it. Thus, the subject-matter of claim 1 of the main request extends beyond the content of the application as filed.

Document D1 is the closest prior art. The subject-matter of claim 1 of the main request differs from the clamping apparatus disclosed in this document in that only one of the platens is movable and in that the force transmitting parts are integrally formed with the clamping structure. The first one of these two features is a simple design option for a person skilled in the art. The second distinguishing feature has no interaction with the first one so that it may be considered independently thereof. In its Figure 1, document D6 shows a clamping apparatus wherein the force transmitting member 6 is integrally formed with the clamping structure. A person skilled in the art will apply this design to the clamping apparatus of document D1 when additional elements such as pivots or tilting elements are to be avoided. Even if "integrally formed" is to be interpreted as meaning "formed as a single piece", such an application would be obvious because it is not necessary that element 6 of document D6 rotates so that it can be formed, together with element 9, as one piece. For this reason the subject-

matter of claim 1 of the main request does not involve an inventive step.

VIII. The respondent argued essentially as follows:

The term "integrally formed" is clear. It can be found in many patent documents and means "formed into a single piece". The fact that, in document D2, this term is used with respect to two separate elements is not a proof to the contrary. In the English language, the technical meaning of this term is not ambiguous so that there is no lack of clarity in claim 1 of the main request.

The feature that the force transmitting parts are integrally formed with the clamping structure is not only disclosed in the drawings of the application as filed. It is also derivable from paragraph [0033] of the application as filed. Thus, the subject-matter of claim 1 of the main request does not extend beyond the content of the application as filed.

In tiebarless injection moulding machines, be they of the type as shown in document D6 or in document D2, there is always a pivot or a joint required to transmit the clamping forces. Also in the clamping apparatus disclosed in document D1, movable bearing elements remain which the present invention seeks to avoid. This problem is solved by integrally forming the force transmitting parts with the clamping structure.

Document D6 does not suggest making the rotatable force transmitting element 6 and the clamping structure in one piece. Thus, the combination of documents D1 and D6 cannot lead in an obvious way to the subject-matter of

claim 1 of the main request, which therefore involves an inventive step.

## **Reasons for the Decision**

### 1. *Article 84 EPC*

The expression "integrally formed" has a clear technical meaning so that a person skilled in the art understands claim 1 of the main request as defining that the force transmitting parts 9, 10, 11 and 12 and the corresponding parts 7b, 8b, 7a and 8a of the clamping structure are made of a single piece or formed into a single piece. The use of the expression "formed integrally" in document D2 in respect of Figure 1 thereof (cf. column 3, lines 47 to 51) is not in conformity with the normal use of this expression in the English language and thus cannot give rise to an ambiguity of this expression. In the judgement of the Board, the subject-matter of claim 1 of the main request is thus clearly defined and, with the embodiment described in paragraph [0013] of the patent, which was not in conformity with claim 1, being deleted, supported by the description. It therefore meets the requirements of Article 84 EPC.

### 2. *Article 123(2) EPC*

The feature that the force transmitting parts are integrally formed with the clamping structure can be derived from paragraphs [0018], [0019], [0033] and [0037], in combination with Figures 1 to 4 and 6, of the application as filed (published version). A person

skilled in the art will read these parts of the application as filed as disclosing a design of force transmitting parts and clamping structure which forms these elements as a single piece and which thus is in accordance with the technical meaning of the expression "integrally formed" (cf. point 1 above). The Board is therefore satisfied that the subject-matter of claim 1 of the main request does not extend beyond the content of the application as filed; it is thus in accordance with Article 123(2) EPC.

3. *Article 56 EPC*

Document D1 is to be considered closest prior art. The essential difference of the subject-matter of claim 1 of the main request with respect to the clamping apparatus disclosed in this document is the design of the force transmitting parts. In document D1 the force transmitting parts are constituted by two bearing elements 13 and 14, which are separate elements between the support elements 11, 12 or 15, 16 and the plates 6 and 2 (cf. column 4, lines 18 to 31 and 51 to 53, and Figures 1 and 2). Thus, these force transmitting parts are not integrally formed with the clamping structure.

By integrally forming the force transmitting parts with the clamping structure it becomes possible to transmit the clamping forces more reliably and by a simpler construction (cf. paragraph [0006] of the patent in suit; the document cited therein corresponds to document D2). Document D1 does not suggest to modify the machine design such that the bearing elements 13 and 14, and thus the force transmitting parts, are integrally formed with the clamping structure.



The Board cannot follow the appellant's opinion that document D6 discloses force transmitting parts which are integrally formed with the clamping structure or would at least render this feature obvious. The force transmitting part of document D6 is a rolling element 6 ("Wälzkörper"), which is carried by a coupling element 9 (cf. page 6, lines 11 to 21, and Figures 1 and 2). In order to fulfil its function, it is essential that the force transmitting part 6 is rotatable. It cannot therefore be formed integrally with element 9. Consequently, document D6 does neither show nor suggest that the force transmitting part can be formed integrally with the clamping structure.

Also none of the other cited documents shows or suggests injection moulding machines in which the force transmitting parts are integrally formed with the clamping structure.

The subject-matter of claim 1 of the main request thus involves an inventive step (Article 56 EPC).

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
  
2. The case is remitted to the first instance with the order to maintain the patent in the amended form as maintained by the Opposition Division, but with paragraph [0013] deleted.

The Registrar:

The Chairman:

D. Meyfarth

W. Moser